

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau(43) International Publication Date
5 April 2001 (05.04.2001)

PCT

(10) International Publication Number
WO 01/23703 A1

(51) International Patent Classification²: E21B 37/06, 43/25

(21) International Application Number: PCT/US00/25483

(22) International Filing Date: 15 September 2000 (15.09.2000)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data: 60/155,593 24 September 1999 (24.09.1999) US

(71) Applicant (for all designated States except US): AKZO NOBEL N.V. [NL/NL]; Velperweg 76, NL-6824 BM Arnhem (NL).

(72) Inventors; and

(75) Inventors/Applicants (for US only): SLIKTA, Alberto [BR/US]; 6033 N. Sheridan Road Apt. 28H, Chicago, IL 60660 (US). GADBERRY, James, F. [US/US]; 17 Chambers Road, Danbury, CT 06811 (US). JOHNSON, Andrew, K. [GB/US]; 110 Foshay Avenue, Pleasantville, NY 10570 (US).

(74) Agent: MANCINI, Ralph, J.; Akzo Nobel Inc., Intellectual Property Dept., 7 Livingstone Avenue, Dobbs Ferry, NY 10522-3408 (US).

(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.

(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

Published:

— With international search report.

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

WO 01/23703 A1

(54) Title: A METHOD OF IMPROVING THE PERMEABILITY OF AN UNDERGROUND PETROLEUM-CONTAINING FORMATION

(57) Abstract: The present invention generally relates to a method and a composition useful in restoring the permeability of a porous underground petroleum-containing formation. Restoring permeability to the formation enhances the injectivity thereby accelerating petroleum recovery. The method of the invention comprises treating said formation with a composition which comprises a combination of at least one nonionic compound, preferably an alkoxylated alcohol, with at least one cationic compound, preferably a quaternary ammonium compound, in an amount effective to improve the permeability of the formation. The composition may also optionally contain an alkyl glycoside.